UNIVERSITY OF FLORIDA
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Energy for Florida Bell Peppers[1]

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Energy Facts

Florida Bell Peppers

24,000 acres, 1.0% of the cropped land.
Statewide, uses 2.52 trillion Btu of energy,
2.0% of all energy used in Florida agriculture.
Per bushel, uses 172,500 Btu of energy.
$44 return per million Btu of energy used.

Bell peppers were grown on about 24,000 acres in Florida in 1990. Bell peppers rank thirteenth among all Florida agricultural commodities in direct energy requirements and fourteenth in total primary energy requirements. Only tomato production requires more energy than bell pepper production among the vegetables. Bell peppers require 1.4% of the direct and 2.0% of the total primary energy required for all Florida production agriculture. Statewide, bell pepper production accounts for 0.56 trillion Btu of direct energy and 2.52 trillion Btu of total primary energy.

The amount of direct energy for bell pepper production in FAECM is 24.2 million Btu/acre and the total primary energy is 113 million Btu/acre. This is 36,900 Btu (equivalent to 0.26 gallons of diesel fuel) of direct energy per bushel of peppers produced and 172,500 Btu (equivalent to 1.23 gallons of diesel fuel) of total primary energy per bushel. The major energy inputs for bell pepper production are "Other costs" (32%), labor (24%), diesel fuel (20%), pesticides other than herbicides, insecticides and fungicides (7%), and nitrogen (5%). "Other costs" includes such inputs as transplants, plastic, containers, equipment and repairs (Figure 1, Table 2).

Comparison of the value of bell pepper production with its energy requirements shows that the value per million direct Btu of $199 is 46% above the average for all Florida agriculture production of $136. The value per million total primary Btu of $44 is at the state's average of $44.

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FLORIDA AGRICULTURE PRODUCTION ENERGY

The data presented in this fact sheet were developed using the Florida Agricultural Energy Consumption Model (FAECM), a computer model. FAECM uses acres of production or livestock numbers and the energy used to make the production inputs required per acre or per head to quantify the *primary* energy used in Florida for agricultural production. This *primary* energy consumption includes fuels, lubricants and electricity, called *direct* energy inputs, as well as the energy used in providing all production inputs (*indirect* energy inputs).

It takes energy to drill an oil well, pump the crude oil out, refine it and transport the diesel fuel to the grower. It takes the energy in the natural gas feedstock plus the energy used to construct the production plant, power the production plant and drive the truck to get the nitrogen fertilizer to the grower. FAECM quantifies the eight direct energy sources (diesel fuel, LP gas, etc.), the indirect energy used to make those eight energy sources available and the indirect energy used to provide thirteen major agricultural inputs (nitrogen fertilizer, pesticides, etc) to determine the energy required to produce agricultural commodities in Florida.

In total, FAECM is a model that predicts all the energy required to provide all inputs necessary, up to the farm gate, for all of Florida's agricultural production, FAECM does not address energy requirements for any transportation, packing, processing, distribution or other functions provided for agricultural commodities after they leave the farm gate.

FAECM shows that direct energy inputs for Florida agricultural production have remained relatively constant since 1974 (Figure 1). Variations are due mainly to changes in commodity production levels and a changing mix of commodities produced. The reduction in total primary energy is due primarily to increases in energy efficiency of industrial production systems for agricultural production inputs.

Florida consumed 66% more energy in 1990 than in 1974, due in large measure to its increased human population. Florida agricultural production energy, expressed as a percentage of the rapidly increasing Florida total energy consumption, has decreased sharply from 7.8% in 1974 to 3.9% in 1990.

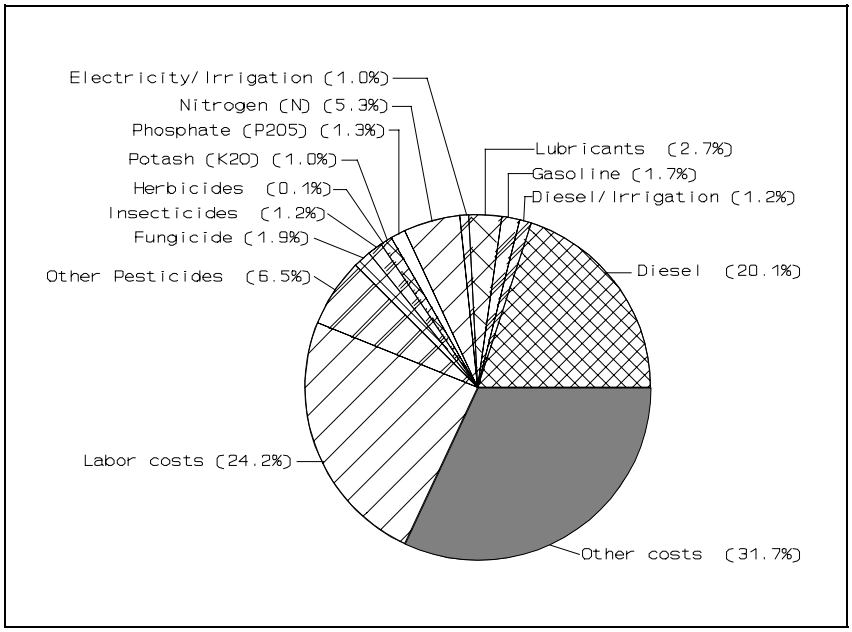

Figure 1. Primary energy inputs for Florida bell pepper production.

Table 2. Primary energy inputs for Florida bell pepper production.

Energy Inputs	%
Other costs	31.7
Labor	24.2
Diesel for non-irrigation	20.1
Other pesticides	6.5
Nitrogen	5.3
Lubricants	2.7
Fungicides	1.9
Gasoline	1.7
Phosphorus	1.3
Insecticides	1.2
Diesel for irrigation	1.2
Electricity for irrigation	1.0
Potash	1.0
Herbicides	0.1